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09/977,063	10/11/2001	Makoto Fujino	MES1P057	1786

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EXAMINER	
CARTER, TIA A	
ART UNIT	**PAPER NUMBER**
2626	

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/977,063	FUJINO, MAKOTO	
	Examiner	Art Unit	
	Tia A Carter	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-15 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2/25/02.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohler (US. 5615312) in view of Lund (Us. 6154227).

Regarding claim 1, Kohler discloses a print control apparatus that controls a printing unit, which applies multiple color inks on a printing medium to print a color image (fig. 2, col. 4, lines 9-11), said print control apparatus comprising:

An image data input module (CPU 40) that receives an input of color image data (fig. 4, col. 5, lines 57-61);

A hue storage module (34a-b) that stores in advance a predetermined range of hues for which saturation is to be enhanced (fig. 5, col. 7, lines 5-8);

A saturation enhancement module (34) that enhances saturation of the input color image data in the predetermined range of hues (fig. 9, col. 9, lines 43-61 and col. 10, lines 20-34);

Kohler does not disclose an ink application density specification module that specifies an application density of ink to be applied on the printing medium with regard

to each of the multiple color inks, based on the color image data with the enhanced saturation in the predetermined range of hues; and

Kohler does not disclose a control signal output module that outputs the specified application density of each color ink as a control signal to said printing unit.

Lund disclose an ink application density specification module (110) that specifies an application density of ink to be applied on the printing medium with regard to each of the multiple color inks, based on the color image data with the enhanced saturation in the predetermined range of hues (fig. 1, col. 3, lines 6-20); and

Lund disclose a control signal output module (114-120) that outputs the specified application density of each color ink as a control signal to said printing unit (fig. 1, col. 3, lines 21-44).

It would have been obvious to one skilled in the art at the time of the invention to modify Kohler wherein the measurement of the actual ink droplet is implemented to further provide an accurate color image output. This feature prevents color over saturation and dull hues via output.

Regarding claim 2, Kohler disclose a print control apparatus in accordance with claims 1, wherein said hue storage module stores hue of blue to green as the predetermined range of hues (fig. 5, col. 7, lines 5-8).

Regarding claim 3, Kohler disclose a print control apparatus in accordance with claim 1, said print control apparatus further comprising:

An expression format conversion module that converts the color image data into data of another expression format using saturation, hue, and lightness (fig. 9, col. 9, lines 43-51),

Wherein said saturation enhancement module receives the data converted to the another expression format and changes data representing the saturation in the predetermined range of hues to data representing higher saturation (fig. 9, col. 9, lines 43-61).

Regarding claim 4, Kohler discloses a print control apparatus in accordance with claim 1, wherein said saturation enhancement module enhances the saturation by a greater degree with an increases in saturation of the color image data in the predetermined range of hues (fig. 9, col. 10, lines 20-34).

Regarding claim 5, Kohler discloses a print control apparatus in accordance with claim 1, wherein said saturation enhancement module comprises:

An image data conversion module that converts the color image data into a wide gamut color image data that is capable of expressing higher saturation than saturation expressible by the color image data (fig. 9, col. 10, lines 48-61),

Said saturation enhancement module enhancing the saturation after the conversion of the input color image data into the wide gamut color image data (fig. 9, col. 10, lines 62-67 and col. 11, lines 1-11).

Regarding claim 6, Kohler disclose a print control apparatus in accordance with claim 1, wherein said saturation enhancement module comprises:

An enhancement degree storage module that stores ion advance a plurality of different degrees of enhancement for saturation of the color image data (Fig. 9, col. 10, lines 20-67); and

An enhancement degree selection module that selects one enhancement degree among the plurality of different enhancement degrees stored (fig. 9, col. 10, line 67 and col. 11, lines 1-8.

Said saturation enhancement module enhancing the saturation of the color image data according to the selected enhancement degree (fig. 9, col. 11, lines 9-49-67).

Regarding claim 7, Kohler disclose a print control apparatus in accordance with claim 1, said print control apparatus comprising:

An enhancement execution setting module that sets in advance execution or non-execution of enhancement for the saturation of the color image data (fig. 9, col. 10, lines 20-34); and

A saturation enhancement prohibition module that prohibits said saturation enhancement module from enhancing the saturation and supplies the color image data received by said image data input module to said ink application density specification module, when the setting represents non-execution of enhancement for the saturation of the color image data (fig. 9, col. 11, lines 38-48),

Kohler does not disclose wherein said ink application density specification module specifies the application density of each color ink based on the supplied color image data

Lund discloses wherein said ink application density specification module specifies the application density of each color ink based on the supplied color image data (fig. 1, col. 3, lines 21-44).

It would have been obvious to one skilled in the art at the time of the invention to modify Kohler wherein the measurement of the actual ink droplet is implemented to further provide an accurate color image output. This feature prevents color over saturation and dull hues via output.

Regarding claim 8, Kohler discloses a print control apparatus that controls a printing unit, which applies multiple color inks on a printing medium to a print a color image (fig. 4, col. 6, lines 9-16), said print control apparatus comprising:

A conversion table (LUT) that stores a mapping of color image data to converted image data, which is obtained through predetermined data conversion of the color image data (fig. 7., col. 9, lines 19-34);

An image data input module (CPU 40) that receives an input of color image data (fig. 4, col. 5, lines 57-61);

An image data conversion module (34) that refers to the conversion table and converts the input color image data into the converted image data (fig. 9, col. 9, lines 45-57);

Wherein the conversion table (LUT) stores the image data with the enhanced saturation in the predetermined range of hues as the converted image data (fig. 8, col. 8, lines 60-67 and col. 9, lines 1-12).

Kohler does not disclose an ink application density specification module that specifies an application density of ink to be applied on the printing medium with regard to each of the multiple color inks, based on the color image data with the enhanced saturation in the predetermined range of hues; and

Kohler does not disclose a control signal output module that outputs the specified application density of each color ink as a control signal to said printing unit.

Lund disclose an ink application density specification module (110) that specifies an application density of ink to be applied on the printing medium with regard to each of the multiple color inks, based on the color image data with the enhanced saturation in the predetermined range of hues (fig. 1, col. 3, lines 6-20); and

Lund disclose a control signal output module (114-120) that outputs the specified application density of each color ink as a control signal to said printing unit (fig. 1, col. 3, lines 21-44),

It would have been obvious to one skilled in the art at the time of the invention to modify Kohler wherein the measurement of the actual ink droplet is implemented to further provide an accurate color image output. This feature prevents color over saturation and dull hues via output.

Regarding claim 9, Kohler disclose a print control apparatus in accordance with claim 8, wherein the conversion table stores a mapping of color image data in a first color system to color image data in a second color system (fig. 5, col. 5, lines 57-67 and col. 6, lines 1-4).

Regarding claim 10, Kohler discloses a printing apparatus that applies multiple color inks on a printing medium to print a color image (fig. 4, col. 6, lines 9-16), said printing apparatus comprising:

A printing unit (30) that applies the multiple color inks on the printing medium (fig. 2, col. 4, lines 31-50);

An image data input module (CPU 40) that receives an input of color image data (fig. 4, col. 5, lines 57-61);

A hue storage module (34a-b) that stores in advance a predetermined range of hues for which saturation is to be enhanced (fig. 5, col. 7, lines 5-8);

A saturation enhancement module (34) that enhances saturation of the input color image data in the predetermined range of hues (fig. 9, col. 9, lines 43-61 and col. 10, lines 20-34);

Kohler does not disclose an ink application density specification module that specifies an application density of ink to be applied on the printing medium with regard to each of the multiple color inks, based on the color image data with the enhanced saturation in the predetermined range of hues; and

Kohler does not disclose a control signal output module that outputs the specified application density of each color ink as a control signal to said printing unit.

Lund discloses an ink application density specification module (110) that specifies an application density of ink to be applied on the printing medium with regard to each of the multiple color inks, based on the color image data with the enhanced saturation in the predetermined range of hues (fig. 1, col. 3, lines 6-20); and

Lund discloses a control signal output module (114-120) that outputs the specified application density of each color ink as a control signal to said printing unit (fig. 1, col. 3, lines 21-44).

It would have been obvious to one skilled in the art at the time of the invention to modify Kohler wherein the measurement of the actual ink droplet is implemented to further provide an accurate color image output. This feature prevents color over saturation and dull hues via output.

Regarding claim 11, Kohler discloses a print control method of controlling a printing unit, which applies multiple color inks on a printing medium to print a color image (fig. 4, col. 6, lines 9-16), said print control method comprising the steps of:

Storing a predetermined range of hues for which saturation is to be enhanced (fig. 5, col. 6, lines 1-8);

Receiving an input of color image data and enhancing saturation of the color image data in the predetermined range of hues (fig. 9, col. 9, lines 62-67 and col. 10, lines 1-34);

Kohler does not disclose specifying an application density of ink to be applied on the printing medium with regard to each of the multiple color inks, based on the color image data with the enhanced saturation in the predetermined range of hues (fig. 1, col. 3, lines 6-20); and

Kohler does not disclose outputting the specified application density of each color ink as a control signal to said printing unit (fig. 1, col. 3, lines 21-44).

Lund disclose specifying an application density of ink to be applied on the printing medium with regard to each of the multiple color inks, based on the color image data with the enhanced saturation in the predetermined range of hues (fig. 1, col. 3, lines 6-20); and

Lund discloses outputting the specified application density of each color ink as a control signal to said printing unit (fig. 1, col. 3, lines 21-44).

It would have been obvious to one skilled in the art at the time of the invention to modify Kohler wherein the measurement of the actual ink droplet is implemented to further provide an accurate color image output. This feature prevents color over saturation and dull hues via output.

Regarding claim 12, Kohler disclose a print control method in accordance with claim 11, wherein the saturation in the predetermined range of hues is enhanced after conversion of the input color image data into a data format that is capable of expressing higher saturation than saturation expressible by the input color image data (fig. 10, col. 13, lines 1-40).

Regarding claim 13, Kohler disclose a computer program product that actualizes a print control method of controlling a printing unit, which applies multiple color inks on a printing medium to a print a color image (fig. 3, col. 4, lines 52-60), said computer program product comprising:

A recording medium (24) in which data is recorded in a computer readable manner (fig. 2, col. 4, lines 17-21); and

A computer program recorded in said recording medium (fig. 2, col. 4, lines 17-21),

Wherein said computer program comprising the program codes of:

Storing a predetermined range of hues for which saturation is to be enhanced 9fig. 5, col. 6, lines 1-8);

Receiving an input of color image data and enhancing saturation of the color image data in the predetermined range of hues (fig. 9, col. 9, lines 62-67 and col. 10, lines 1-34);

Kohler do not disclose specifying an application density of ink to be applied on the printing medium with regard to each of the multiple color inks, based on the color image

data with the enhanced saturation in the predetermined range of hues (fig. 1, col. 3, lines 6-20); and

Kohler does not disclose outputting the specified application density of each color ink as a control signal to said printing unit (fig. 1, col. 3, lines 21-44).

Lund disclose specifying an application density of ink to be applied on the printing medium with regard to each of the multiple color inks, based on the color image data with the enhanced saturation in the predetermined range of hues (fig. 1, col. 3, lines 6-20); and

Lund discloses outputting the specified application density of each color ink as a control signal to said printing unit (fig. 1, col. 3, lines 21-44).

It would have been obvious to one skilled in the art at the time of the invention to modify Kohler wherein the measurement of the actual ink droplet is implemented to further provide an accurate color image output. This feature prevents color over saturation and dull hues via output.

Regarding claim 14, Kohler discloses a program that causes a computer to attain a print control method of controlling a printing unit, which applies multiple color inks on a printing medium to a print a color image (fig. 3, col. 4, lines 52-60), said program comprising the program codes of:

Storing a predetermined range of hues for which saturation is to be enhanced (fig. 5, col. 6, lines 1-8);

Receiving an input of color image data and enhancing saturation of the color image data in the predetermined range of hues (fig. 9, col. 9, lines 62-67 and col. 10, lines 1-34);

Kohler do not disclose specifying an application density of ink to be applied on the printing medium with regard to each of the multiple color inks, based on the color image data with the enhanced saturation in the predetermined range of hues; and

Kohler does not disclose outputting the specified application density of each color ink as a control signal to said printing unit.

Lund discloses specifying an application density of ink to be applied on the printing medium with regard to each of the multiple color inks, based on the color image data with the enhanced saturation in the predetermined range of hues (fig. 1, col. 3, lines 6-20); and

Lund discloses outputting the specified application density of each color ink as a control signal to said printing unit (fig. 1, col. 3, lines 21-44).

It would have been obvious to one skilled in the art at the time of the invention to modify Kohler wherein the measurement of the actual ink droplet is implemented to further provide an accurate color image output. This feature prevents color over saturation and dull hues via output.

Regarding claim 15, Kohler discloses an image processing apparatus that receives an input of color image data, makes the input color image data subject to a predetermined series of image processing, and outputs the processed color image data

to outside to print a resulting image (fig. 4, col. 5, lines 40-45), said image processing apparatus comprising:

An image data input module (34) that receives the input of the color image data 9fig. 4, col. 5, lines 57-61);

A hue storage module (34a-b) that stores in advance a specified hue for which saturation is to be enhanced (fig. 5, col. 7, lines 5-8);

A saturation enhancement module (34) that enhances saturation of the specific hue of the color image data according to a difference between saturation expressible by the color image data and saturation printable with a color printer, which prints color images with regard to the specific hue (fig. 9, col. 9, lines 43-61 and col. 10, lines 20-34);
; and

An image data output module (30) that outputs the color image data with the enhanced saturation (fig. 2, col. 4, lines 31-50).

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 13-14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 13 contain unacceptable claim terminology "program product" and claim 14 contain unacceptable claim terminology

"program " this language is not accepted as a proper format, please refer to MPEP 2106, case law, USPTO policy.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yoshizawa (US. 6731398) and Shu (US 5517335) are cited to show related art with respect to image color processing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tia A Carter whose telephone number is 703 - 306-5433. The examiner can normally be reached on M-F (7:00-3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly A Williams can be reached on 703-305-4863. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tia A Carter
Examiner
Art Unit 2626

TAC
3/21/05

KIMBERLY WILLIAMS
SUPERVISORY PATENT EXAMINER